

Chemical Cartography: Urban Data Acquisition Proposers' Day – Q&A

December 17, 2010

Q1: The program's Broad Agency Announcement (BAA), Section 1.1.1.2 stipulates continuous release of three tracer gases during each thirty-minute sample collection period. Does this imply release from one fixed site, multiple sites, or different sites during different sampling periods?

A1: This is up to the proposer. Proposals should state which methodology the proposer considers the most informative and explain why.

Q2: What would constitute sufficient firewall separation to allow a Chemical Cartography: Urban Data Acquisition team member to participate in Chemical Cartography: Anomaly Detection and Attribution?

A2: See the "Note" on Page 6 of the BAA that states: "Proposers intending to propose to future efforts must include a description of organizational conflicts of interest and how they would be addressed in the Management Approach, Section 4.4.2.1, Section II.G." See also Page 17, Section 3.1.1, 2nd and 3rd paragraphs.

Q3: Will the locations of the data points used to validate the models be withheld or provided prior to the Independent Verification and Validation (IV&V) task?

A3: The (x,y,z) coordinates of the validation data points will be released to performers prior to IV&V.

Q4: Will metadata associated with the meteorological data be collected and distributed? For example, data collected at the bottom of the urban canyon, on the side of the urban canyon, or on top of the buildings have different interpretations.

A4: Performers in Technical Area One will provide the physical location and any metadata that describes the physical location. This will, at a minimum, include shape files for the collection location.

Q5: What is the acceptable fee range for a Cost-Plus-Fixed-Fee (CPFF) contract? What fee has DARPA historically awarded for this type of effort?

A5: It is up to the proposer to determine what type of contract is requested, as well as proposed amount of fee, both of which are subject to negotiation on any proposal selected for award of a contract.

Q6: If the goal is to create a chemical "snapshot" of an urban area at a certain point in time, why is chemical degradation (i.e., what a chemical will turn into at a later time) seen as a critical challenge?

A6: A model may need to 'understand' chemical degradation to correctly infer concentrations at finer spatial and temporal resolution. The primary interest is in any degradation that occurs between the release location and the downwind sampling location.

Q7: Are there ITAR issues with this program?

A7: It is the responsibility of the proposer to comply with all export control laws and regulations. Review the BAA, Section 6.6 "Export Control" for guidance.

Q8: What are the repercussions for missing the initial round's due date of January 6th?

A8: There is a limited amount of funding. Selection of proposals submitted after the initial due date will be contingent upon funding availability.

Q10: Is there an envisioned start time for this program?

A10: Tentatively, May 2011.

Q11: Do you have a preference for Cost-Reimbursement, Fixed Price, or Cost plus fixed fee contracts?

A11: No.

Q12: Can you provide information on the HAST/PACT programs?

A12: Dr. Daniell's slides from the Proposers' Day will be posted at:
<http://www.schafertmd.com/conference/cicuda/Teaming/people.php>. For more information, please refer to the BAA.

Q13: Does a proposal have to address all tasks in a Technical Area?

A13: Yes.

Q14: Should we provide options priced into the contract for different collection grid sizes, etc.?

A14: Yes, this is appropriate. However, if priced options are proposed they should be included as separate option tasks within the SOW. Please note that the base effort proposed must meet the

minimum requirements of the BAA and options should be supported with fully compliant cost documentation.

Q15: Does this program attempt to address emergency management applications? Are operational issues inclusive of both battlespace and homeland security? What is the concept of operations?

A15: No. This program is focused on Department of Defense objectives to provide a basis for the future creation of spatial and temporal chemical maps on a scale suitable for the chemical reconnaissance of a city. Multiple concepts of operations are envisioned. See BAA Section 1.1, 'Program Overview', for additional guidance.

Q16: Do you expect integration of HAST/PACT/Chemical Cartography: Urban Data Acquisition in this phase?

A16: No.

Q17: Can we partner with HAST/PACT teams?

A17: Yes, the HAST and PACT teams are not prohibited from proposing to this BAA.

Q18: Is Chemical Cartography: Anomaly Detection and Attribution included in this BAA?

A18: No, this BAA only addresses Chemical Cartography: Urban Data Acquisition.

Q19: How do you get ground truth data from a model?

A19: Collecting the extensive ground truth necessary for model development in Chemical Cartography: Anomaly Detection and Attribution is cost-prohibitive. This modeled data will act as a 'best approximation' to that ground truth data. Understandably, these models will not produce real ground truth data, however, it is expected that the best approximation provided by the models will be sufficient for the model development in follow-on efforts.

Q20: Will there only be data from a single collection site provided to the modelers?

A20: There could be data from multiple collection sites. Performers on Technical Area Two must accept all data provided by the government.

Q21: Are there any limitations on hardware in Chemical Cartography: Urban Data Acquisition?

A21: No.

Q22: If modeling teams require specific data not provided by the collector, how will they get this? Are modeling teams allowed to go out with the data collection teams and collect data alongside? Will they be required to release this data to other modeling teams?

A22: Technical Area Two proposals should list all necessary model input data. It is encouraged that the Technical Area Two metrics be met with only the data collection described in Technical Area One of the BAA. If the proposer requires specific data not outlined in Technical Area One of the BAA, they must provide strong justification of the added value. To that end, modelers will not be prohibited from collecting data alongside performers on Technical Area One. Data collectors will be required to release information to all modeling teams.

Q23: Is there a preferred collection area? Urban is a very broad descriptor.

A23: There is no preference for collection area, however, areas should be chosen to be cost-effective but adhere to tracer release regulations. Also, see the BAA, Section 1.1.1.2 for guidance regarding tracer gas releases.

Q24: What is intended by one meter, one hour resolution? These metrics seem incompatible due to fluctuations occurring within an hour.

A24: Teams must provide data points at every meter, every hour. These metrics should not be seen as a limitation. If proposers would like to model at higher resolution and only provide the subset of data produced every meter, every hour that is acceptable. This resolution will, however, be limited by the data collection in Technical Area One. If sample points are not taken instantaneously, achieving higher temporal resolution may not be possible.

Q25: Is it possible to be both a prime proposer and a proposed subcontractor on different proposals?

A25: Yes. However, teams that propose as both must have the resources to perform on all proposals if all are selected.

Q26: For collection at multiple 0.5km x 0.5km areas, do you want the collection areas to be in the same spot, or should they be representative of different topographies?

A26: This is left up to the proposer. Proposals should state which would be most valuable, cost-effective, reliable, etc. In addition, characterization of sources outside of the 0.5kmx 0.5km area is left up to the proposer.

Q27: Vertical resolution is not required in the BAA. Is there a way to specify?

A27: The BAA does not mandate the precise methods for achieving program goals. Each proposer must specify a vertical resolution appropriate for their specific collection strategy and geographic/urban area.

Q28: If we are both data collector and data modeler, do we have to internally firewall between the two teams?

A28: All of the collected data must be withheld from the modeling team. Appropriate subsets of the collected data will be released will be released at the direction of DARPA, simultaneously to all modeling teams. This does not require a complete firewall. Teams must address any concerns they have with accomplishing this in their proposal. See the BAA, Section 1.1.2.2. for further guidance.

Q29: If possible, should collection teams plan to script activities during collection periods?

A29: This is not required; however, knowing what activities took place on collection days can provide helpful metadata. DARPA will evaluate the additional expense and schedule complexity against any additional scientific and technical merit granted by proposed exercises.

Q30: Can MIPRs be used for companies with Federally-Funded Research and Development Centers (FFRDCs) or Government entities as subcontractors?

A30: No. See BAA Section 3.1.

Q31: According to the BAA, "Government entities must clearly demonstrate that the work is not otherwise available from the private sector and provide written documentation citing the specific statutory authority establishing their ability to propose to Government solicitations." Does this mean that unless a DoD or other government laboratory could somehow show that the work could not be done in the private sector, then that entity is ineligible to propose under the BAA?

A31: Yes. See BAA Section 3.1. A DoD or other government lab must demonstrate their unique capability in addressing the metrics of the BAA as stated in the BAA. DARPA will consider eligibility submissions on a case-by-case basis, however, the burden to prove eligibility for all team members rests solely with the Proposer.

Q32: Is it possible for non-government entities to team with government entities? Can a government entity act as a sub to a prime in the private sector if that entity's capability enhances that of the private party? If the answer is yes, can the government entity receive funding from the prime for time and

effort in making that capability available to the private organization if a cooperative agreement between the prime and sub is effected in accordance with agency procedures and policies?

A32: A government entity can team with a prime in the private sector if the government entity has the appropriate authority, and demonstrates they have received the proper approvals. The prime contractor is responsible for executing subcontracts with team members. DARPA will not fund any of the prime contractor's subcontracts directly, or otherwise be involved in cooperative agreements between primes and government subcontractors. See BAA Section 3.1., "Eligible Applicants" for full details.

Q33: Is cost sharing possible on this effort, specifically could a team bring equipment to the program and would it be considered cost sharing? And would they be able to use the equipment after the project ends to sell commercially?

A33: Please see BAA Section 3.2, "Cost Sharing/Matching".

-----NEW QUESTIONS BEGIN HERE-----

Q34: In the Urban Chemical Composition Characterization task (Section 1.1.1.2), there are chemical measurements being collected over a 0.5 km x 0.5 km domain from the local urban sources, plus a tracer experiment. Will both data sets be used in the validation of the models, or will only the tracer experiment?

A34: Both will be used.

Q35: In the tracer experiments described in Section 1.1.1.2, are the Data Modeling teams given the source location and/or release rates? Or is this treated as an unknown, and the models must also determine this?

A35: For tracer experiments either the locations and release quantities will be provided or the sample concentrations will be provided, but not both.

Q36: Based on the description in Technical Area 2, the modeling teams will be provided metadata, which earlier is described as locations of different local urban source characterization data. Does this mean that the modeling teams will be provided information on all, some, or none of the sources in the 0.5 km x 0.5 km modeling domain?

A36: For the urban samples, metadata regarding upwind activities will be provided based on readily available or observable indicators such as map searches or reasonably detailed surveys performed by sampling teams. It is unlikely that every source will be identified or that exact locations will be available.

Q37: Concentration measurements are said to have a sampling duration of less than 30 minutes. Wind speed and wind direction measurements will be part of the experiment as well, but no averaging time requirements are specified. At what averaging time are the experimental teams to provide this data? At what averaging time will the wind measurements be provided to the Data Modelers?

A37: Data collectors must propose a cohesive strategy for measuring wind, including averaging times. Data modelers who require specific input regarding wind conditions should also specify their requirements. If modelers request measurements beyond the scope of the baseline required from collectors, modelers should be prepared to acquire the information as part of their effort if those measurements would not otherwise be provided.

Q38: Will the wind measurements be provided as inputs to the modeling teams or only be used for validation purposes? If they are used as input, note that an averaging time shorter than 30 minutes would be more beneficial to the Data Modeling teams as compared to longer averaging times.

A38: Data Modeling teams should specify and defend their input requirements.

Q39: Is the purpose to hold back the wind measurements (to use them for validation) and the Data Modeling teams are expected to use meteorological model output to drive the models? If this is the case, and if the Data Modeling teams choose different meteorological models to use to drive their model's boundary conditions, won't the Data Modeling and validation studies be clouded by the differences in the meteorological models?

A39: Wind measurements will be provided by performers in Technical Area One.

Q40: A FAC2 > 50% is often quoted in the literature as being the goal for a plume model in rural areas for non-paired in time and space comparisons of measured and model-computed maximum (centerline) plume concentrations. However, for the purposes of this study, is it true that you aim to have the measurements and model computations paired in space and time and to include all measurements, not only the maximum centerline values?

A40: Measurements and model predictions paired in space and time will be used, not just centerline data.

Q41: Will the page limits for those proposers responding to both Technical Areas be the same as those submitting for a single area? In particular, the page limits for Technical Rationale and Statement of Work may be overly constraining to those proposing both technical areas. May an additional page allowance be granted to the Technical Rationale and Statement of Work sections of the proposal to those proposing for both Technical Areas?

A41: From Amendment #1 to the BAA: "Proposals addressing both Technical Area 1: Urban Data Collection AND Technical Area 2: Urban Data Modeling may be increased by a total of five (5) pages, with the following breakdown: Technical Rationale increased by three (3) pages (an increase from 12 to

15 pages); Comparison with Alternatives increased by one (1) page (an increase from 2 to 3 pages); and Statement of Work (SOW) increased by one (1) page (an increase from 3 to 4 pages)."

Q42: Is DARPA interested in additional measurements (chemical or meteorological) to complement the existing HAST/PACT measurements to help with the modeling?

A42: See answer to Q43 below.

Q43: If we are to use the existing HAST/PACT measurements, the proposal mentions a 50 m resolution on a 500 x 500 m grid every 6 hours. Can we change this sampling strategy as necessary to improve our modeling - e.g. higher resolution sampling near sources and coarser away?

A43: Yes. Propose and substantiate your solution and how you would get that data.

Q44: In Section 1.2, 'Program Metrics', for Technical Area Two no metrics are given on run time of the models to create the urban chemical maps. Is there no run time constraint?

A44: No run-time constraint is given in the BAA. Expected run time could be considered under the 'Overall Scientific and Technical Merit' evaluation criterion, however. If the software can only be executed at highly specialized facilities (supercomputers, etc.), this may impact opportunities for technology transition. Carefully review all of the evaluation criteria, particularly Sections 5.1.1 and 5.1.4.

Q45: Is there a list of potentially most important chemicals that the program is interested in or classes of chemicals? Knowledge of this would be useful in estimating model development requirements in relation to decay and chemical reactions.

A45: No list is given. The Chemical Reconnaissance program will address comprehensive chemical collection, analysis, and interpretation. Solutions should be general to as many compounds as possible.

Q46: In Section 1.1.2.1, 'Model Development' (p. 11) it says "Data modelers will be provided data by at least one collector at intermediate points throughout the effort up to four total deliveries (every 3 months) as determined by DARPA." Is the "one collector" mentioned in this sentence, one group that has instrumented a certain city or site?

A46: 'Collector' in this context refers to a team of performers participating in Technical Area One: Urban Data Collection.

Q47: In Section 1.3.2, 'Deliverables', it says "Source code used to generate each map must be provided to the Government prior to verification and validation activities as part of the evaluation process" and

later "All computer software developed or delivered under the Chemical Cartography: Urban Data Acquisition program must be delivered as source and as object (executable) code." To whom will the source code be provided to after this phase of the project is over? Will it only be allowed to be used on the next DARPA project on Anomaly Detection and Attribution? Will it be allowed to be used for for-profit purposes?

A47: The source code must be delivered to the Government, including all requirements in Section 1.3.3., 'Software'. Regarding intellectual property rights, including the Government's stated preference for deliveries with Unlimited Rights, or at a minimum Government Purpose Rights, see Sections 1.3.4 'Intellectual Property', and 7.1 'Intellectual Property', as well as the evaluation criterion 'Plans and Capability to Accomplish Technology Transition', described in Section 5.1.4.

Q48: How many relevant papers may be included with the submission? Section 4.4.1 page 22 states "Copies of not more than three (3)" while Section 4.4.2.1.K page 24 states "Copies of not more than two (2)"

A48: Section 4.4.2.1.K "Copies of not more than two (2)" is correct.